IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: Lavastre	§	Atty. Dkt. No.: F-884
	§	
Serial No.: 10/573,507	§	Group Art Unit: 1796
	§	
Confirmation No.: 3556	§	Cust. No.: 25264
	§	
Filed: August 28, 2006	§	Examiner: Lu
	§	
For: Bimodal Polyethylene	§	
	§	
	§	
	§	

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Honorable Commissioner:

CERTIFICATE OF EFS-WEB TRANSMISSION
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9/2/2008
Date

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APPEAL BRIEF

Appellants submit this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 1796 dated December 31, 2007, finally rejecting claims 38-48.

Real Party in Interest

The present application has been assigned to TOTAL Petrochemicals Research Feluy, Zone Industrielle C, 7181 Seneffe (Feluy), Belgium.

Related Appeals and Interferences

Appellants assert that no other appeals, interferences or judicial proceedings are known to the Appellants, the Appellants' legal representative or Assignee that will

directly affect, be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1-37 were originally presented in the application and cancelled in Response to Office Action dated May 17, 2007. Claims 38-48 are pending in the application and were submitted in Response to the Office Action dated May 17, 2007. Claims 38-48 stand rejected under 35 U.S.C. §112, first paragraph and 35 U.S.C. §103(a). The rejection of the pending claims is appealed. The pending claims are shown in the attached Appendix A.

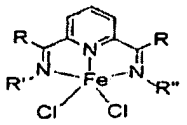
Status of Amendments

Amendments were made to the pending claims in Response to the Final Office Action on February 26, 2007 and March 31, 2006. Neither amendment was entered by the Examiner.

Summary of Claimed Subject Matter

Independent claim 38 recites a method for preparing bimodal polyethylene polymer. *See,* specification, at least paragraph Abstract and Figure 3. The method includes combining porous polyethylene beads with polymerization catalyst component and subjecting the combination to reduced pressure thereby obtaining supported catalyst, washing the supported catalyst, supplying the supported catalyst to a second reaction zone, maintaining the second reaction zone under conditions effective to obtain bimodal polyethylene polymer and obtaining bimodal polyethylene polymer. *See,* specification, at least Abstract, page 3, line 26 to page 4, line 14 (paragraphs 20-21) and Figure 3.

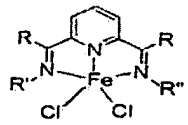
Dependent claim 41 recites preparing the porous polyethylene beads in a first reaction zone by contacting ethylene monomer with an iron based catalyst complex represented by the formula (I):



wherein R is an alkyl having from 1-20 carbon atoms and R' and R" are the same or different and are an alkyl group having from 1-20 carbon atoms or an unsubstituted or substituted aryl group having at least one substituent of at least l-20 carbon atoms and wherein the catalyst complex is covalently bound to and supported on porous polystyrene beads. *See,* specification, at least page 3, line 26 to 30 (paragraph 20) and page 4, line 17 to page 5, line 14 (paragraphs 27-30).

Dependent claim 47 recites that R is a methyl group and R' and R" are the same phenyl group and are isopropyl groups substituted at the 2 and 6 positions. *See,* specification, at least page 3, line 26 to 30 (paragraph 20) and page 4, line 17 to page 5, line 14 (paragraphs 27-30).

Independent claim 48 recites a method for preparing bimodal polyethylene polymer. *See,* specification, at least paragraph Abstract and Figure 3. The method includes combining under pressure porous polystyrene beads with a catalyst represented by the formula (I)



wherein R is a methyl group and R' and R" are phenyl groups both substituted at the 2 and 6 positions with methyl, isopropyl or tertiary butyl groups, obtaining styrene supported catalyst, washing the styrene supported catalyst, supplying the styrene supported catalyst to a first reaction zone, maintaining the first reaction zone under conditions effective to obtain porous polyethylene beads, combining the porous polyethylene beads with polymerization catalyst component and subjecting the combination to reduced pressure thereby obtaining supported catalyst, washing the supported catalyst, supplying the supported catalyst to a second reaction zone, maintaining the second reaction zone under conditions effective to obtain bimodal

polyethylene polymer and obtaining bimodal polyethylene polymer. *See,* specification, at least Abstract, page 4, line 14 (paragraphs 20-21) and page 4, line 17 to page 5, line 14 (paragraphs 27-30) and Figure 3.

Grounds of Rejection to be Reviewed on Appeal

1. The rejection of claims 38-48 under 35 U.S.C. §112, first paragraph.

2. The rejection of claims 38-48 under 35 U.S.C. §103(a) as being unpatentable over WO 96/11218 (*Collina*) in view of U.S. Pat. No. 6,734,267 (*Chang*), U.S. Pat. No. 4,587,227 (*Smith*) and New J. Chem. 2002, 26, 1485-1489 (*Lin*).

Arguments

I. THE EXAMINER ERRED IN REJECTING CLAIMS 38-48 UNDER 35 U.S.C. §112, FIRST PARAGRAPH

The Examiner states that the Examiner is unable to identify the full support of the new set of claims and the new set of claims (*i.e.*, 38-48) are deemed to be new matter. *See,* Final Office Action at page 2, last paragraph to page 3, first paragraph. Appellants have detailed support for each line of the claims in the Summary included herewith and submit that full support is included for each element of the pending claims. Therefore, reversal of the rejection is respectfully requested.

II. THE EXAMINER ERRED IN REJECTING CLAIMS 38-48 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER *COLLINA* IN VIEW OF *CHANG, SMITH* AND *LIN*

Claims 38-48 stand rejected under 35 U.S.C. §103(a) as being unpatentable over WO 96/11218 (*Collina*) in view of U.S. Patent No. 6,734,267 (*Chang*), U.S. Patent No. 4,587,227 (*Smith*) and New J. Chem. 2002 (*Lin*).

Appellants submit that *Collina* does not teach, show or suggest supplying a styrene supported catalyst to a first reaction zone to form porous polyethylene beads, wherein the catalyst is an iron based catalyst, combining the porous polyethylene beads with polymerization catalyst to form supported catalyst and supplying the supported catalyst to a second reaction zone, as recited in the claims 39 and 46. Rather, *Collina*

teaches a first stage utilizing a titanium or vanadium catalyst, deactivation of the titanium or vanadium catalyst (Ziegler catalyst) and supporting a metallocene compound on the olefin polymer produced in the first stage for polymerization in a second stage. *See*, Abstract and page 4, last paragraph.

Further, Appellants submit that *Collina* does not teach, show or suggest methods for preparing bimodal polyethylene utilizing a catalyst component wherein R is a methyl group and R' and R" are substituted with isopropyl groups at the 2 and 6 positions, as recited in pending claim 45.

The secondary references are no more pertinent to the Appellants' disclosure than the primary reference cited because the secondary references do not supply the features missing from *Collina*. For example, *Lin* teaches specific structures substituted with two pyridine substituents and one C_3 alkyl substituent (*see*, structures on page 16) rather than the substitution pattern of the pending claims. The Examiner has not identified support in the secondary references for the missing features identified herein in the secondary references. Therefore, it is believed that a detailed discussion of the secondary references is unnecessary and Appellants respectfully request reversal of the rejection.

Conclusion

In conclusion, the references of record, either alone or in combination, nowhere teach, show or suggest the features of the pending claims. Thus, Appellants respectfully request reversal of the rejections of claims 38-48.

Respectfully submitted,

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Appendix A

Pending Claims

38. A method for preparing bimodal polyethylene polymer comprising:

combining porous polyethylene beads with polymerization catalyst component and subjecting the combination to reduced pressure thereby obtaining supported catalyst;

washing the supported catalyst;

supplying the supported catalyst to a second reaction zone;

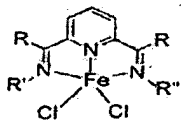
maintaining the second reaction zone under conditions effective to obtain bimodal polyethylene polymer; and

obtaining bimodal polyethylene polymer.

39. The method of claim 38 further comprising preparing the porous polyethylene beads in a first reaction zone.

40. The method of claim 39 wherein a supported catalyst is used.

41. The method of claim 40 further comprising preparing the porous polyethylene beads in a first reaction zone by contacting ethylene monomer with an iron based catalyst complex represented by the formula (I):



wherein R is an alkyl having from 1-20 carbon atoms and R' and R" are the same or different and are an alkyl group having from 1-20 carbon atoms or an unsubstituted or substituted aryl group having at least one substitnent of at least 1-20 carbon atoms; and wherein the catalyst complex is covalently bound to and supported on porous polystyrene beads.

42. The method of claim 41 wherein R is a C_1-C_4 alkyl group.

43. The method of claim 41 wherein R is a methyl group.

44. The method of claim 43 wherein R' and R" are the same phenyl group.

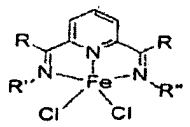
45. The method of claim 44 wherein R' and R" are substituted with substituents at the 2 and 6 positions.

46. The method of claim 45 wherein the substituents are selected from the group consisting of methyl, isopropyl and tertiary butyl.

47. The method of claim 45 wherein the substituents are isopropyl groups.

48. A method for preparing bimodal polyethylene polymer comprising:

combining under pressure porous polystyrene beads with a catalyst represented by the formula (I)



wherein R is a methyl group and R' and R" are phenyl groups both substituted at the 2 and 6 positions with methyl, isopropyl or tertiary butyl groups;

obtaining styrene supported catalyst;

washing the styrene supported catalyst;

supplying the styrene supported catalyst to a first reaction zone;

maintaining the first reaction zone under conditions effective to obtain porous polyethylene beads;

combining the porous polyethylene beads with polymerization catalyst component and subjecting the combination to reduced pressure thereby obtaining supported catalyst;

washing the supported catalyst;

supplying the supported catalyst to a second reaction zone;

maintaining the second reaction zone under conditions effective to obtain bimodal polyethylene polymer; and

obtaining bimodal polyethylene polymer.

Appendix B

Evidence

Not Applicable

Appendix C

Related Proceedings

Not Applicable